

EXHIBIT 4

BROWN DECLARATION IN SUPPORT OF MOTION TO EXCLUDE

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

IN RE: HIGH-TECH EMPLOYEE)
) No. 11-CV-2509-LHK
ANTITRUST LITIGATION)
_____)

VIDEOTAPED DEPOSITION OF EDWARD E. LEAMER Ph.D.
San Francisco, California
Thursday, December 19, 2013
Volume IV

Reported by:
CARLA SOARES
CSR No. 5908
Job No. 1784254

Pages 1170 - 1489

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1 .05 or .01, you propose as the correct level of 09:15:30
2 significance a 50 percent level, correct?

3 A You say "50 percent" as if you're
4 astounded by that number. But the answer is yes.

5 Q In fact, you say in paragraph 86 that you 09:15:49
6 propose a significance level of 50 percent that,
7 quote, seems to be the correct approach in this
8 case; is that correct?

9 A Well, I have a discussion about the
10 inappropriateness of the 5 percent level and said 09:16:04
11 that one alternative would be 50 percent. There's
12 other numbers. It could be 20 percent, 40 percent.
13 But the 50 percent has the feature that the
14 employees are fairly treated.

15 Q At 50 percent, the likelihood that your 09:16:19
16 hypothesis is actually correct, that there was
17 actually some damage caused by the agreement, is no
18 greater than just flipping a coin; is that correct?

19 A So it says if the damages are a penny, the
20 total damages are a penny, you and I ought to just 09:16:39
21 get together and flip a coin instead of going to all
22 the trouble of deciding whether there are damages or
23 not.

24 So you're absolutely right, that for tiny,
25 tiny damages, it says that you might as well flip 09:16:50

1 the coin. And that gives you -- having done that, 09:16:53
2 then you have more power at a higher level of
3 damages. So that if the damages are 10 percent,
4 that means that you only have a 10 percent chance of
5 making an error. So there's a trade-off between 09:17:08
6 type 1 and type 2 error.

7 Q Are you aware of any other study or any
8 literature that endorses the use of a significance
9 level of 50 percent for type 1 error?

10 A Off the top of my head, I'm not familiar 09:17:28
11 with one, no.

12 Q And, in fact, are you aware of any court
13 decision that says a 50 percent significance level
14 is appropriate for type 1 error?

15 A I believe we had a ruling in this case 09:17:44
16 that the large standard error on the coefficient
17 isn't a reason to conclude that there are no
18 damages. So that's an indirect statement.

19 Q But that was not a statement about a
20 significance level of 50 percent, was it? 09:17:58

21 A It's tantamount to that. It's equivalent
22 to that in a statistical sense.

23 Q So the court's decision in this case you
24 believe is tantamount to saying, we will accept a
25 significance level of 50 percent for type 1 error? 09:18:12

1 estimate. It could be smaller and it could be
2 larger.

09:19:38

3 And I don't think that there's any special
4 reason to favor the small as opposed to the large.

5 We need to be fair to the employees here. And the
6 best estimate based on this data is what it is.

09:19:46

7 BY MR. RILEY:

8 Q But it's not significant?

9 MR. GLACKIN: Object to the form.

10 THE WITNESS: There's a large sampling
11 error associated with this coefficient. I
12 completely agree with that.

09:19:56

13 BY MR. RILEY:

14 Q Thanks.

15 In paragraph 85 of your reply report of
16 December 2013, and again, this is in discussion with
17 using the conventional statistical significance
18 threshold of 5 percent, you write in the penultimate
19 sentence, "Even if the first year effect were
20 10 percent, the probability of finding in favor of
21 the employees is still 40 percent compared with a
22 type 1 error that's only 5 percent."

09:20:41

09:21:08

23 Do you see that?

24 A I see that.

25 Q Is "employees" there meant to be

09:21:30

1 "employers"? 09:21:33

2 A I think it is.

3 Q So let me read that the way that it was
4 intended before you made that error.

5 "Even if the first year effect were 09:21:43
6 10 percent, the probability of finding in favor of
7 the employers is still 40 percent compared with a
8 type 1 error that is only 5 percent."

9 Is that correct?

10 A That's correct. 09:21:53

11 MR. RILEY: We need to change the DVD, so
12 why don't we take our first break.

13 THE VIDEO OPERATOR: This marks the end of
14 Volume IV, Media No. 1, of the deposition of
15 Dr. Edward E. Leamer. The time is 9:22 a.m. We're 09:22:12
16 off the record.

17 (Recess, 9:22 a.m. - 9:39 a.m.)

18 THE VIDEO OPERATOR: We are back on the
19 record at 9:39 a.m. This marks the beginning of
20 Volume IV, Media No. 2, of the deposition of 09:39:33
21 Dr. Edward E. Leamer.

22 Please continue.

23 BY MR. RILEY:

24 Q Dr. Leamer, again, returning to your
25 opinion in paragraph 86 of the October 2013 reply 09:39:49

1 report in which you state that the significance 09:39:56
2 threshold for a probability of finding no damage
3 should be set at 50 percent, have you ever used that
4 approach in any of your other work?

5 A I don't think I quite endorse the 09:40:19
6 50 percent, but I illustrate what 50 percent would
7 imply. And if I had to choose between Figure 15
8 versus this other figure, then Figure -- versus
9 Figure 16, Figure 16 seems to me to be the better
10 choice. 09:40:35

11 So I just want to clarify the record. I'm
12 not necessarily endorsing 50 percent. But the
13 specific answer to your question is, I don't do
14 point null hypothesis testing. I can't remember a
15 setting in which the point null hypothesis of zero 09:40:48
16 effect was really material.

17 Q In paragraph 86 you write, with regard to
18 the significance level of 50 percent, you say, "This
19 seems to be" -- I'm sorry. "This seems to me to be
20 the correct approach." 09:41:08

21 Do you see that?

22 A I see that.

23 Q Right. So have you ever used that
24 approach in any other work that you've done?

25 A I don't do hypothesis testing. Most of my 09:41:19

1 work is about estimation. And in economics, the
2 idea of exact zero values is extremely implausible.
3 So the strict hypothesis testing isn't something
4 that enters my day-to-day statistical analysis.

09:41:21

5 Q Have you ever done any work on, for
6 example, drug testing for efficacy?

09:41:41

7 A No, I have not.

8 Q So you've never done any work on
9 hypothesis testing?

10 MR. GLACKIN: Object to form.

09:41:54

11 THE WITNESS: No, but you did bring up a
12 setting in which the point null hypothesis does make
13 sense.

14 BY MR. RILEY:

15 Q The drug testing?

09:42:00

16 A Whether a drug has an impact or not.

17 Q But I'm not asking about drug testing
18 right now. I'm asking about the work that you've
19 done as an economist, expert witness, professional
20 expert witness. You've never done hypothesis
21 testing; is that right?

09:42:12

22 A We don't have anything in economics that's
23 the equivalent of a drug test.

24 Q Again, I'm not asking about drug testing.

25 I'm asking about hypothesis testing. So I just want

09:42:23

1 to close this issue.

09:42:29

2 Dr. Leamer, you have never done hypothesis
3 testing in any work that you've done?

4 A I've done a lot of work over the years,

5 and as I sit here today, I cannot recall any case in 09:42:39

6 which I was interested in a point null hypothesis.

7 I've done hypothesis testing having to do

8 with signs of coefficients, but not with regard to

9 the hypothesis of zero coefficient.

10 Q Dr. Leamer, do you believe that the total 09:43:01

11 hiring by the defendants at any time during the

12 class period decreased as a result of the

13 do-not-cold-call agreements?

14 A I don't know.

15 Q Are you aware of any evidence that 09:43:15

16 suggests that total hiring by the defendants

17 decreased due to the agreements?

18 A No, I'm not.

19 Q Did any defendant decrease hiring during

20 the class period? 09:43:38

21 MR. GLACKIN: Object to the form.

22 THE WITNESS: It's not a clear question as

23 it's phrased. You mean compared to -- do you mean

24 in any given year did a decline occur? Did it

25 decline relative to what it was before? I'm not 09:43:54

1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:

4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth;
6 that any witnesses in the foregoing proceedings,
7 prior to testifying, were placed under oath; that a
8 verbatim record of the proceedings was made by me
9 using machine shorthand which was thereafter
10 transcribed under my direction; that the foregoing
11 is an accurate transcription thereof; that before
12 completion of the deposition, review of the
13 transcript was not requested. If requested, any
14 changes made by the deponent (and provided to the
15 reporter) during the period allowed are appended
16 hereto.

17 I further certify that I am neither
18 financially interested in the action nor a relative
19 or employee of any attorney or party to this action.

20 IN WITNESS WHEREOF, I have this date
21 subscribed my name.

22
23 Dated: January 3, 2014

24 _____
25 CARLA SOARES